UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/639,612	08/11/2003	Gregg D. Wilensky	07844-590001 / P543	5396

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EXAMINER
SHIKHMAN, MAX

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NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _05 March 2009_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-10,12-21,26-35,37-46,51 and 52_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-10,12-21,26-35,37-46,51 and 52_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _03/05/2009_.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

Response to Amendment

1.   Applicants' RCE response to the last Office Action, filed 03/05/2009 has

been entered and made of record.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-10, 12-21, 26-35, 37-46, 51, 52 are rejected under 35 U.S.C.

103(a) as being unpatentable over

Held 20020126893, "Automatic color defect correction" in view of

Nesterov 20030007687, "Correction of "red-eye" effects in images".

() Regarding Claims 1,26:

(NOTE: target region= Held Fig1 Face.

a first probability=[0102] "mask...probability whether a certain pixel belongs

to a red-defect region or not". Equation 1.2.

second probability=[0102] "Pixels along the borderlines receive a gradually

decreasing probability". Borderline pixels get a separate probability in mask.

First and second probabilities are both based on color.

first one of the predefined features= first feature=[0102] "red-defect".

second one of the predefined features= second feature=[0102] "red-defect" along

borderlines.

combining the first probability and the second probability=[0102] [0103] mask.)

1. (Currently Amended) A computer-implemented method for adjusting the color

of pixels in an image, each pixel having one or more color values, the method

comprising:

identifying a target region of pixels in the image that represent an object, (Held.

Fig1: Face) the object having a shape ([0024] "shape") and a predefined set of

features; and (Figs 13, 14)

*   calculating a first probability ([0102] "mask...probability whether a certain

pixel belongs to a red-defect region or not". Equation 1.2.) that one or more pixels

in the target region represent a first one of the predefined features ([0102] red defect.)

based at least in part on a color (Equation 1.2.) of the one or more pixels;

calculating a second probability ([0101] borders. [0102] borderlines) that the

one or more pixels represent a second one of the predefined features ([0102] pixels

along the borderlines.) based at least in part on a color (Equation 1.2.) of the one or

more pixels;

combining the first probability and the second probability to calculate a

probability that the one or more pixels represent the first feature or the second feature;

and ([0102] [0103] mask.)

computing a new color (Eq 1.3 Rnew) of the one or more pixels in the target

region based at least in part on the probability ([0102] [0103] mask.) that the one or

more pixels represent the first feature ([0102] "red-defect" not on borderline.) or the

second feature and ...** (Borderline pixels have a separate [0102] "gradually

decreasing probability" in mask.)

Held discloses spatial profile [0083] "two dimensional accumulator space,

which will show prominent peaks wherever there is an eye." Held discloses

everything as described above except, A computer-implemented, changing a

color using a spatial profile in equation.

Nesterov discloses, A computer-implemented ([0029] computer),

*defining one or more spatial profile functions

([0116] a neutral color, such as a neutral gray...gray value may change radially.

[0120] Y=Ycenter/[D+E(1-D)])

based at least in part on one or more spatial properties ([0120] D) of one or more

of the predefined set of features; (glint)

**the one or more spatial profile functions. ([0120] Y=Ycenter/[D+E(1-D)])

As Nesterov discloses, it is desirable to change color based on distance

from the eye center, *[0116] "A benefit of the higher central density is that such a*

distribution corresponds more closely to the higher optical density pupil and lower

density iris". Therefore, it would have been obvious to one of ordinary skill in the

art at the time of the invention, to use Nesterov's method in Held's eq 1.3, to

make distance dependent color changes for red eye correction.

All the claimed elements were known in the prior art and one skilled in the art could have

combined the elements as claimed by known methods with no change in their respective functions, and

the combination would have yielded predictable results to one of ordinary skill in the art at the time of

the invention.

() **Regarding Claim 2,27**:

2. The method of claim 1 wherein the spatial properties include size.

([0019] [0068] "size")

() **Regarding Claim 3,28**:

3. The method of claim 1, wherein the spatial properties include shape.

([0024] "shape")

() **Regarding Claims 4,29**:

4. (Currently Amended) The method of claim 1, wherein the spatial profile

functions include a sigmoid function.

Held does not disclose expressly a sigmoid function.

At the time of the invention, it would have been obvious to a person of

ordinary skill in the art to use a sigmoid function. Applicant has not disclosed that

using a sigmoid function provides an advantage, is used for a particular purpose

or solves a stated problem. One of ordinary skill in the art, furthermore, would

have expected Applicant's invention to perform equally well with either the

accumulator ([0083], Fig 16. Fig 15.) taught by Held or the claimed sigmoid

function because both functions perform the same function of spatial profile to locate eyes.

Therefore, it would have been obvious to one of ordinary skill in this art to use a sigmoid function in Held to obtain the invention as specified in claim 4.

() **Regarding Claims 5,30**:

5. The method of claim 1, wherein the spatial profile functions include a Gaussian function.

(Held [0087] "accumulator, a Gaussian distribution")

() **Regarding Claims 6,31**:

6. (Currently Amended) The method of claim 1, wherein the spatial profile functions include a spatial profile function defined by a mask.

(Held [0102] "mask...Pixels along the borderlines receive a gradually decreasing probability")

() **Regarding Claims 7,32**:

7. The method of claim 1, wherein identifying a target region of pixels includes: receiving data that identifies the target region of pixels.

(Fig 15: Location of Eye. Fig 4: Detected Eye)

() **Regarding Claim 8,33**:

8. (Currently Amended) The method of claim 1, wherein the first feature comprises skin ([0010] Fig2 "skin". [0057]. Non-eye regions) and the second feature comprises sclera. ([0012] [0063]. Sclera or eye figs 4,5,14.)

() Regarding Claim 9,34:

9. (Currently Amended) The method of claim 1, wherein the first feature comprises skin ([0010] Fig2 "skin". [0057]. Non-eye regions) and the second feature comprises highlight. (red eye)

() Regarding Claim 10,35:

10. (Currently Amended) The method of claim 1, wherein the one or more spatial profile functions comprise a spatial profile function (Nesterov [0120] Y=Ycenter/[D+E(1-D)])

defined based at least in part on one or more spatial properties of a ciliary margin. (Nesterov [0120] glint)

() Regarding Claim 12,37:

12. The method of claim 1, wherein:

the image is a photographic image including an eye exhibiting a redeye effect; and(Fig1: correct red eyes)

the identified region of pixels corresponds to a portion of the eye that exhibits the redeye effect. (Fig1: correct red eyes)

() Regarding Claim 13,38:

13. (Currently Amended) The method of claim 1, wherein:

the predefined set of features include at least one of skin, sclera, iris highlight an

edge, or redeye. (Fig1: correct red eyes)

() **Regarding Claim 14,39**:

14. (Currently Amended) The method of claim 1, wherein computing the new

color includes:

computing the new color (Held. Eq 1.3 Rnew) to match a representative color

for the region; and (Held. Eq 1.3 Rnew)

using the probability that the one or more pixels represent the first feature or the

second feature to change the computation. ([0102] "Pixels along the borderlines

receive a gradually decreasing probability". Borderline pixels get a separate

probability in mask.)

() **Regarding Claim 15,40:**

15. The method of claim 14, wherein the representative color (Rnew) represents

an iris color for the eye. ([0019] [0104] "iris")

() **Regarding Claim 16,41:**

16. (Currently Amended) The method of claim 1, wherein computing the new

color includes:

Desaturating (Eq 1.3) the color of pixels in a subregion (mask) of the region;

and (eye)

using the probability (mask) that the one or more pixels represent the first feature

or the second feature to modulate the amount of desaturation.

(Eq 1.3.)

() Regarding Claim 17,42:

17. The method of claim 16, wherein:

the subregion (mask) is the center of the region. (eye)

([0102] "Pixels along the borderlines receive a gradually decreasing probability".

[0103] "...mask represents actual probability values for eye defects...")

() Regarding Claim 18,43:

18. The method of claim 16, wherein:

the subregion is an outer rim of the region. ([0102] "Pixels along the

borderlines receive a gradually decreasing probability".)

() Regarding Claim 19,44:

19. (Currently Amended) The method of claim 1, wherein computing the new

color includes:

reducing a luminance value of one or more pixels that correspond to the

pupil of an eye. (Nesterov [0120] "darkening all but the lightest areas of the

pupil.")

() Regarding Claim 20,45:

20. (Currently Amended) The method of claim 1, wherein computing the new

color includes:

computing the color of a pixel based in part on color values of pixels surrounding

the pixel.

([0026] "correction mask data can be directed to binary dilation and also be

influenced by a Gaussian smoothing or the like.")

() Regarding Claim 21,46:

21. (Currently Amended) The method of claim 20, wherein computing the new

color of a pixel based in part on color values of pixels surrounding the pixel includes:

defining a window of pixels surrounding the pixel; and (mask)

determining a representative color for the window of pixels.

([0029] "minimum of the green colour channel and the blue colour channel".)

() Regarding Claims 51,52:

(NOTE: original color=Nesterov E. original color=Ycenter)

51. (Currently Amended) The method of claim 1 wherein computing the new

color (Rnew.) includes computing the color based in part on an original color (Held. R)

of the one or more pixels. (Held Eq1.3)

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4.   Claims 1,26 rejected under 35 U.S.C. 103(a) as being unpatentable over

        Chen 20020106112 "Digital image processing method and computer

program product for detecting human irises in an image" in view of

Held 20020126893, "Automatic color defect correction" and further in view

of   Nesterov 20030007687, "Correction of "red-eye" effects in images".

() **Regarding Claims 1,26**:

(Note: first feature=iris. second feature=noniris. target region=Chen 26)

1. (Currently Amended) A computer-implemented method for adjusting the color

of pixels in an image, each pixel having one or more color values, the method

comprising:

identifying a target region (Chen 26) of pixels in the image that represent an

object, the object having a shape (fig3 oval) and a predefined set of features; and (face

features)

calculating a first probability (44. iris) that one or more pixels in the target region

represent a first one of the predefined features (iris) based at least in part on a color of the

one or more pixels; ([0033] "iris pixel based upon the red")

calculating a second probability (46. noniris) that the one or more pixels

represent a second one (noniris) of the predefined features based at least in part on a

color of the one or more pixels; ([0033] "non-iris pixel as a function of a specific

red")

combining the first probability and the second probability to calculate a

probability (48) that the one or more pixels represent the first feature (iris) or the second

feature; (noniris) and

...based at least in part on the probability (Chen 48) that the one or more pixels

represent the first feature or the second feature and

Chen does not disclose computing a new color.

Held discloses as follows. computing a new color (Held. Eq 1.3 Rnew) of the

one or more pixels in the target region.

As Held discloses, it is desirable to compute a new color to correct red

eye. Therefore, it would have been obvious to one of ordinary skill in the art at

the time of the invention, use Chen's method of locating iris color pixels, then

correct redeye using Held's method.

Held discloses spatial profile [0083] "two dimensional accumulator space,

which will show prominent peaks wherever there is an eye." Held discloses

everything as described above except, A computer-implemented, spatial profile

to compute a new color.

Nesterov discloses, A computer-implemented ([0029] computer),

*defining one or more spatial profile functions

([0116] a neutral color, such as a neutral gray...gray value may change radially.

[0120] Y=Ycenter/[D+E(1-D)])

based at least in part on one or more spatial properties ([0120] D) of one or more

of the predefined set of features; (glint)

**the one or more spatial profile functions. ([0120] Y=Ycenter/[D+E(1-D)])

As Nesterov discloses, it is desirable to change color based on distance

from the eye center, *[0116] "A benefit of the higher central density is that such a*

distribution corresponds more closely to the higher optical density pupil and lower

density iris". Therefore, it would have been obvious to one of ordinary skill in the

art at the time of the invention, to use Nesterov's method in Held's eq 1.3, to

make distance dependent color changes for red eye correction.

All the claimed elements were known in the prior art and one skilled in the art could have

combined the elements as claimed by known methods with no change in their respective functions, and

the combination would have yielded predictable results to one of ordinary skill in the art at the time of

the invention.

Conclusion

5.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to MAX SHIKHMAN whose telephone number is

(571)270-1669. The examiner can normally be reached on Monday-Friday

8:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-8300.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

/Max Shikhman/
Examiner, Art Unit 2624
3.23.2009

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624